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ABSTRACT

This study surveyed community college students to determine the dynamic relationships among: their background variables; college experiences; academic, career, and personal gains; and satisfaction. The Community College Student Experience Questionnaire was administered to 1,062 students, and A. Astin's (1991) input-environment-output assessment model was used in the analysis. Primary background variables were age, credit hours completed, gender, family and job effects on school work, and race. Secondary background variables included principle educational goal, hours per week spent studying, and hours per week spent on campus outside of class. College experience variables included quality of effort scales for class, library, faculty, student acquaintances, art/music/theater, science, writing, vocational skills, and counseling experiences. Outcome variables included student self-reported gains and a satisfaction scale. The study concluded that substantial proportions of the variance in academic, career, and personal gains and in satisfaction were accounted for by the direct effects of college experiences/quality of effort, which were, in turn, influenced by student background variables. The faculty quality of effort scale had no direct effects upon any of the gains factors or upon the satisfaction scale. (Contains 24 references.) (JDD)

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Influences on the Academic, Career, and Personal Gains and Satisfaction of Community College Students

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Abstract

Large numbers of American students enroll in community colleges and calls for assessment as to how their progress toward educational goals and satisfaction are impacted by in-class and out-of-class experiences are widespread. Yet few studies involving community college students have examined the dynamic relationships between background variables, college experiences, academic, career, and personal gains and satisfaction. The present study addresses this need by examining the results of the Community College Student Experience Questionnaire for 1,062 students at a seven-site university regional campus system using path analysis. The results should be of interest to community college institutional researchers, administrators, and faculty.

for Management Research, Policy Analysis, and Planning

This paper was presented at the Thirty-Fourth Annual Forum of the Association for Institutional Research held at The New Orleans Marriott, New Orleans, Louisiana, May 29, 1994 - June 1, 1994. This paper was reviewed by the AIR Forum Publications Committee and was judged to be of high quality and of interest to others concerned with the research of higher education. It has therefore been selected to be included in the ERIC Collection of Forum Papers.

Jean Endo
Editor
Forum Publications

Influences on the Academic, Career, and Personal Gains and Satisfaction of Community College Students

Nearly forty percent of all undergraduates are now enrolled at community, technical, and junior colleges ("The Nation," 1993). As at senior institutions, calls for assessment of the gains made by community college students and their satisfaction with the programs and services offered have become pervasive. Most institutions have responded to these calls by documenting student cognitive outcomes and satisfaction, but have not approached assessment from a true "value-added" or "talent development" perspective (Astin, 1991). Such a perspective would suggest a consideration of the effects of student involvement in college experiences and of diverse student abilities, backgrounds, and goals on student learning, development, and satisfaction (Astin, 1884; Pace, 1984).

Two recent reviews of the literature concerning the impact of college on students both highlight the fact that far too few of such studies account for both the influence of student background characteristics and of college experiences on student growth and development (Astin, 1993; Pascarella & Terenzini, 1991). Further, few such studies consider both direct and indirect effects on educational outcomes. These limitations are particularly apparent in the literature on community college students (Lipetzky & Ammentorp, 1991; Lehman, 1991) where student backgrounds and goals and the type and scope of student

involvement opportunities may be unlike those for senior institutions (Webb, 1989). Clearly more information is needed to increase our understanding of the community college educational experience.

The Community College Student Experience Questionnaire (CCSEQ) is designed to provide critical information on student characteristics and college environments as well as on students' growth and satisfaction. This self-report instrument provides information concerning demographics, grades, primary reason for attending college, the effect of family and job responsibilities on college work, the quantity and quality of effort students put into college activities (e.g., interactions with faculty and student acquaintances, use of the library, writing activities, and vocational skills), gains towards academic, career, and personal goals, and satisfaction with their institution (Lehman, 1992). The CCSEQ is designed to reflect the psychometric construct of involvement or quality of effort (QE) which has been shown in the literature to affect student outcomes and persistence (cf. Astin, 1984; Pace, 1984; Pascarella, 1985; Pascarella, Smart, & Ethington, 1986; Spady, 1971; Tinto; 1987).

Since the development of the CCSEQ in 1989, studies designed to provide normative information on the instrument and its psychometric properties have additionally provided some tantalizing information about the community college student educational experience. Lehman (1992), for example, briefly

discusses in the CCSEQ test manual relationships between course and vocational skills activities and career gains as well as between course activities and gains in communications skills and personal development. Douzenis and Murrell (1992) report a negative relationship between quality of effort and hours worked per week as well as the finding that students whose primary reason for attendance is to gain job skills show lower involvement in college activities than do students who intend to transfer to senior institutions. The results of multiple regression analyses performed by Lipetzky and Ammentorp (1991) provide a considerable amount of information concerning the relationships between gains, background, and quality of experience factors, yet they do not consider indirect effects, nor do they account for possible spurious relationships, as could be accomplished through the use of a path analysis technique (Asher, 1983; Pascarella & Terenzini, 1991; Wolfe, 1985).

Thus the purpose of the present study is to further our understanding of the community college student educational experience and how it may be influenced by exploring relationships between background variables, CCSEQ quality of effort scales, gain factors, and satisfaction using a path analysis approach. Because of the limited literature available concerning the precise relationships between student background variables (for example diverse educational goals and the effects of family and job responsibilities), college experiences, and

student growth and satisfaction for community college students, the relationships between a large number of these variables were explored resulting in the generation of a tentative causal model. Therefore the current research should be considered theory-generating rather than theory-testing. As noted in the discussion below, a next step into this line of inquiry will be to pose an independent CCSEQ data set against the model developed in this study.

Methods

Subjects

Subjects were 1,062 students attending the seven regional campuses of a midwestern university who completed the CCSEQ during the spring of 1992. The CCSEQ was administered in-class within a randomly selected group of course sections representing a broad cross section of the student body. A profile of background variables for the subjects is given in Table 1.

Insert Table 1 About Here

Age, credit hours completed, gender, family and job effects on school work, and race served as primary background variables. Principle educational goal (gaining job skills or transfer to a senior institution), hours per week spent studying, and hours per week spent on campus outside of class served as secondary

background variables which were influenced by the primary background variables. The CCSEQ quality of effort scales (class, library, faculty, student acquaintances, art/music/theater, science, writing, vocational skills, and counseling experiences) served as mediating college experience variables. Student self-reported gains (twenty-three CCSEQ items grouped into six factors) and a satisfaction scale comprised of the sum of five CCSEQ items served as outcome variables. Relationships between gains and satisfaction were not explored since they were assessed simultaneously making causal inferences difficult to interpret and also because the nature of such relationships may be more complex than is immediately apparent (Pike, 1992).

Confirmatory factor analysis results and reliability estimates for the CCSEQ quality of effort scales, the gain factors, and the satisfaction scale are shown in Table 2.

Insert Table 2 About Here

Confirmatory factor analysis results for the quality of effort items showed the same scale structure as reported in the CCSEQ test manual (Lehman, 1992). Factor loadings and reliability estimates were quite similar to those reported in the test manual. Confirmatory factor analysis results for the gains factors showed the same scale structure as reported in the test

manual except that the item "becoming aware of different philosophies, cultures, and ways of life" was included in the perspectives of the world factor. Reliability estimates for the gains factors and factor analysis results as well as reliability estimates for the satisfaction scale were not given in the test manual.

Design and Procedure

Astin's (1991) input-environment-output assessment model guided the analytic approach to the study. Primary and secondary background variables functioned as student inputs, the nine CCSEQ quality of effort scales served as college experience variables, and the six gain factors plus the satisfaction scale were considered outcomes. Due to the exploratory nature of the current study the outcome variables were regressed on all input and environmental variables and the environmental variables were regressed on all student inputs.

Again based upon Astin's (1991) approach, hierarchical multiple regression results were used to provide path coefficients for the causal model. Direct effects were considered significant in the path model when the corresponding beta coefficients in the multiple regression equations were found to be significant at the $p < .05$ level. Primary background variables were first entered as a block into the twenty-two multiple regression equations, followed by a block of the

secondary background variables, and finally a block consisting of the quality of effort scales.

Results

The trimmed path analysis model is shown in Figure 1. Table 3 shows zero-order correlations between the dependent and independent variables, direct, indirect, and total effects, and the rank ordering of the total effects of each independent variables on the dependent variables.

Insert Figure 1 About Here

Insert Table 3 About Here

The art/music/theater quality of effort scale showed significant direct effects along with credit hours completed on gains in the arts. Significant indirect effects on arts gains included time on campus outside of class, age, gender, race, the effect of job responsibilities on school work.

Significant direct effects on career gains included credit hours completed, the vocational skills, counseling, and student acquaintances QE scales. Credit hours completed, time on campus, goal of transfer to a senior institution, age, and job effect on school work had significant indirect effects.

The QE course and writing activity scales along with credit hours showed significant direct effects on communications gains. Credit hours completed, time studying, time on campus, gender, primary goal of improving job skills, age, job, and family effects on school work showed significant indirect effects.

Variables which showed significant direct effects upon the math/science/technology gains factor included credit hours completed, and the QE science, counseling, and vocational skills scales. Credit hours completed, time on campus, goal of transfer, job effect on school work, time studying, age, and gender had significant indirect effects on math/science/technology gains.

The quality of effort course, student acquaintances, and counseling scales showed significant direct effects on personal and social development gains. Time on campus, credit hours completed, time studying, age, gender, and job effect on school work produced significant indirect effects.

Credit hours completed, five of the QE scales (art/music/theater, course, student acquaintances, library, and vocational skills), and gender all had significant direct effects on the gains factor concerning perspectives of the world. Significant indirect effects on this gains factor were shown by time on campus, credit hours completed, time studying, age, goal of transfer, job effect on school work, and race.

Age and the QE counseling scale had significant direct effects on satisfaction. Credit hours completed, job effect on school work, and time on campus produced significant indirect effects.

It should also be noted that the faculty QE scale had no significant direct effects upon any of the gains factors or upon the satisfaction scale.

Discussion

Astin's (1984) involvement theory and Pace's (1984) quality of effort construct were validated for two-year college students in the current study; substantial proportions of the variance in academic, career, and personal gains and in satisfaction were accounted for by the direct effects of college experiences/ quality of effort, which were, in turn, influenced by student background variables. The current work also lent credence to Johnson's (1987) research concerning community college students.

A number of Lipetzky and Ammentorp's (1991) results were confirmed with the present study. Quality of effort in art, music and theater was the primary influence on arts gains. Quality of effort in course and writing activities were principle contributors to communications gains. Age had an influence on math, science, and technology gains, although Lipetzky and Ammentorp (1991) found it was a negative influence while the current study showed it to have a (slight) positive influence. Student acquaintances, course activities, and job effect on

sc ool work influenced personal and social development gains. Finally, student acquaintances, gender (being female), and job effect on school work all influenced perspectives of the world gains.

A number of parallels can be drawn between Terenzini, Pascarella, and Lorang's (1982) and Terenzini and Wright's (1987a) study on the influences on students' academic growth and the present work. Academic progress was found to be influenced by contact with and perceptions of faculty, classroom activities, contact with peers, extracurricular and social activities, and race. For the current study, gains in the arts, career preparation, math, science, and technology abilities, and in perspectives of the world were influenced by, for example, involvement in art, music, and theater activities, course activities, and with student acquaintances, and by race.

Similarly, Terenzini, Pascarella, and Lorang's (1982) and Terenzini and Wright's (1987b) study of the influences on students' personal growth and the present research share a number of similar findings. In both studies, personal and social development and gains in communications skills were influenced by such variables as course activities, student acquaintances, gender, and goals.

Some of the variables in the current study which consistently had the most pronounced direct and indirect effects on gains and satisfaction included involvement with counseling

activities and with student acquaintances, time on campus, age, credit hours completed, and job effect on school work. The important influences of personal and career counseling on community college student development is highlighted in these results. The importance of the influence of peers or student acquaintances on student learning and growth is discussed at length in Astin's new (1993) book and is shown in the present study for two-year college students.

Time on campus outside of class functioned as a relatively exogenous variable in the current research and the importance of its influence (perhaps as a direct measure of student involvement) was demonstrated. Age and job effects on school work were also shown to have strong influences on student gains and satisfaction. While these variables are not subject to institutional control (at least in open-admission community colleges), the anecdotal importance of their influences on community college students has been empirically validated in the present work. Finally, the strong influence of credit hours completed (both direct and indirect) on gains and satisfaction underscores the importance of student experience and involvement on their development.

Some explanation for the absence of any student-faculty interaction effects in the present study should be attempted. Terenzini, Pascarella, and Lorang (1982, 106) note that "when other measures . . . were taken into account through regression

analysis, . . . the influence of the student-faculty interaction variables became much less pronounced." Citing evidence from Wilson, Wood, and Gaff (1974) and from Wilson, Gaff, Dienst, Wood, and Bavry (1975), Terenzini et al. (1982) suggest that classroom involvement (which was significantly related to gains in the present study) may actually account for most of the influence of student-faculty interaction and that student-faculty non-class contact is significantly associated with student-faculty interaction in the classroom. The difficulties of non-class student-faculty interaction in community colleges (where students are commuters and where large proportions of the faculty are part-time instructors) and the importance of student-counselor contact (which may be acting as a proxy for student-faculty contact) as noted in the current study also provide possible explanations for the apparent lack of influence of interactions with faculty.

These conclusions should be considered in light of a number of limitations of the current research. First, the percentage of variance in the gains factors and satisfaction explained by the path model is only about 30% and 10%, respectively. While the models of four-year college student growth offered by Terenzini, Pascarella, and Lorang (1982) and Terenzini and Wright (1987a, 1987b) had no greater explanatory power, these results nevertheless suggest that other influences remain unexplored. Secondly, data for the current study were collected from seven

campuses of a single two-year college system. To the extent that between-college effects on student development occur on the community college level, they are unaccounted for in the present model; a CCSEQ data base from multiple institutions would be required to test for such possible effects.

The third potential limitation of the present study is reliance upon self-reported college experience and gains data, although there is evidence that such data is indeed valid (see Pace, 1984). Fourth, the current work is cross-sectional, not longitudinal in design. As noted above, the strong effects of a greater number of credit hours completed on quality of effort and on gains and satisfaction suggest an important dynamic involving student experience within the college environment. The nature of this dynamic (for instance the answer to the question of when do important effects on the development of community college students occur during the period of their enrollment) remains unexplored. Finally and as noted previously, the current study should be considered theory-generating rather than theory-testing; the efficacy of the proposed model should be tested against other CCSEQ data sets.

These conclusions and limitations suggest that posing the model resulting from the current study against another CCSEQ data set would be a logical next step in the line of inquiry regarding the learning, development, and satisfaction of community college students. Utilization of such a data set from multiple

institutions would also provide for the consideration of between-institution effects, as noted above.

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Table 1.

Profile of Background Variables for the Subjects

Variable	N	%
Age		
18-19 or younger	295	28%
20-22	293	28%
23-27	148	14%
28-39	253	24%
40-55	70	6%
Over 55	3	
Credit Hours Completed		
1-15	233	22%
16-30	405	38%
31-45	212	20%
46 or More	212	20%
Family Responsibilities Effect on School Work		
No family responsibilities	278	26%
Family does not interfere	258	24%
Family takes some time	380	36%
Family takes a lot of time	146	14%
Gender		
Female	696	65%
Male	366	35%
Job Responsibilities Effect on School Work		
No Job responsibilities	255	24%
Job does not interfere	212	20%
Job takes some time	467	44%
Job takes a lot of time	128	12%
Race		
American Indian	4	
Asian or Pacific Islander	11	1%
Black, African-American	32	3%
Hispanic, Latino	10	1%
White	1003	94%
Other	2	1%

Variable	N	%
Goal of Attending Institution		
Prepare to transfer	656	53%
Skills for current or new job	464	44%
Time on Campus Not in Class (per week)		
None	221	21%
1 to 3 Hours	376	36%
4 to 6 Hours	217	20%
7 to 9 Hours	98	9%
10 to 12 Hours	54	5%
More Than 12 Hours	96	9%
Time Spent Studying (per week)		
1 to 5 Hours	295	28%
6 to 10 Hours	388	37%
11 to 15 Hours	224	21%
16 to 20 Hours	105	10%
More Than 20 Hours	50	4%

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Table 2.

Confirmatory Factor Analysis Results and Reliability Estimates for the CCSEQ Quality of Effort Scales, the Gain Factors, and the Satisfaction Scale

	Quality of Effort Scales								
Item	Course Learning	Library Activities	Faculty	Student Acquaintances	Art, Music, Theater	Writing Activities	Science Activities	Vocational Skills	Couns. and Career Planning
1	.59	.62	.70	.77	.68	.71	.62	.84	.51
2	.60	.74	.76	.81	.65	.75	.81	.87	.45
3	.58	.71	.71	.85	.77	.74	.82	.88	.66
4	.63	.80	.72	.82	.73	.81	.85	.88	.49
5	.56	.72	.71	.81	.70	.44	.80	.86	.60
6	.69	.64	.72	.63	.73	.74	.83	.88	.63
7	.61	.67	.65			.75	.65	.82	.49
8	.64		.71			.71	.76		
9	.74						.63		
10	.66								
Alpha Reliability Estimates									
	.83	.82	.84	.84	.76	.86	.90	.94	.61

	Estimate of Gains Factors						
Item*	Arts	Career Preparation	Communications Skills	Math, Science, Technology,	Personal, and Social Development	Perspectives of the World	Satisfaction
	5 .66	1 .61	7 .69	9 .42	11 .85	10 .80	.61
	6 .84	2 .80	8 .70	13 .47	12 .80	17 .44	.70
		3 .77		14 .62	16 .75	19 .72	.60
		4 .75		15 .83	22 .75	20 .79	.70
				18 .69	23 .55	21 .73	.73
Alpha Reliability Estimates							
	.65	.77	.61	.72	.78	.78	.69

* Item numbers reflect CCSEQ Estimates of Gains items 1 through 23.

Table 3.

Breakdown of Effects Generated by Paths in Trimmed Causal Model.

Dependent Variable (Independent Variables)	Zero-Order Correlation	Direct Effect	Indirect Effect	Total Effect	Rank Order
Effect on Goal: Job Skills					
of Age	0.36	0.36	0.00	0.36	1
of Credit Hours Completed	-0.05	-0.10	0.00	-0.10	3
of Gender	0.10	0.07	0.00	0.07	2
Effect on Goal: Transfer					
of Age	-0.36	-0.37	0.00	-0.37	1
of Credit Hours Completed	0.08	0.13	0.00	0.13	2
of Gender	-0.09	-0.06	0.00	-0.06	3
Effect on Time on Campus					
of Credit Hours Completed	0.18	0.19	0.00	0.19	1
of Job Effect on School Work	-0.07	-0.09	0.00	-0.09	2
Effect on Time Studying					
of Age	0.23	0.17	0.00	0.17	1
of Credit Hours Completed	0.13	0.10	0.00	0.10	3
of Family Effect on School Work	0.20	0.11	0.00	0.11	2
of Gender	0.12	0.08	0.00	0.08	4
of Job Effect on School Work	-0.07	-0.11	0.00	-0.11	2
Effect on QE Art, Music, Theater					
of Time on Campus	0.23	0.23	0.00	0.23	1
of Age	-0.15	-0.12	0.00	-0.12	2
of Credit Hours Completed	0.09	0.08	-0.02	0.06	4
of Gender	0.04	0.08	0.00	0.08	3
of Job Effect on School Work	0.01	0.00	-0.01	-0.01	5
of Race	-0.05	-0.06	0.00	-0.06	4
Effect on QE Counseling					
of Time on Campus	0.28	0.15	0.00	0.15	1
of Credit Hours Completed	0.14	0.10	0.03	0.13	2
of Job Effect on School Work	0.05	0.06	-0.01	0.05	3
Effect on QE Course					
of Time on Campus	0.31	0.24	0.00	0.24	1
of Time Studying	0.30	0.21	0.00	0.21	2
of Age	0.10	0.00	0.04	0.04	5
of Credit Hours Completed	0.16	0.08	0.07	0.15	3
of Family Effect on School Work	0.11	0.00	0.02	0.02	6
of Gender	0.10	0.08	0.02	0.10	4
of Job Effect on School Work	0.00	0.00	-0.04	-0.04	5

Table 3.

Breakdown of Effects Generated by Paths in Trimmed Causal Model. (Continued)

Dependent Variable (Independent Variables)	Zero-Order Correlation	Direct Effect	Indirect Effect	Total Effect	Rank Order
Effect on QE Library					
of Time on Campus	0.34	0.29	0.00	0.29	1
of Time Studying	0.17	0.07	0.00	0.07	4
of Age	-0.01	0.00	0.01	0.01	7
of Credit Hours Completed	0.23	0.18	0.07	0.25	2
of Family Effect on School Work	-0.04	-0.07	0.01	-0.06	5
of Gender	0.06	0.08	0.01	0.09	3
of Job Effect on School Work	-0.06	0.00	-0.04	-0.04	6
Effect on QE Science					
of Time on Campus	0.25	0.18	0.00	0.18	1
of Time Studying	0.22	0.18	0.00	0.18	1
of Age	0.02	-0.06	0.03	-0.03	4
of Credit Hours Completed	0.18	0.13	0.04	0.17	2
of Family Effect on School Work	0.06	0.00	-0.02	-0.02	5
of Gender	-0.04	-0.06	0.01	-0.05	3
of Job Effect on School Work	0.06	0.07	-0.04	0.03	4
Effect on QE Student Acquaintances					
of Time on Campus	0.32	0.31	0.00	0.31	1
of Credit Hours Completed	0.10	0.00	0.03	0.03	3
of Gender	0.02	-0.16	0.00	-0.16	2
of Job Effect on School Work	0.23	0.06	-0.03	0.03	3
Effect on QE Vocational Skills					
of Goal: Transfer	-0.18	-0.25	0.00	-0.25	2
of Time on Campus	0.18	0.12	0.00	0.12	3
of Age	0.13	0.00	0.09	0.09	4
of Credit Hours Completed	0.31	0.29	-0.01	0.28	1
of Gender	0.02	0.00	0.02	0.02	5
of Job Effect on School Work	0.05	0.00	-0.01	-0.01	6
Effect on QE Writing					
of Goal: Job Skills	-0.07	-0.19	0.00	-0.19	3
of Time on Campus	0.27	0.20	0.00	0.20	2
of Time Studying	0.29	0.25	0.00	0.25	1
of Age	-0.05	-0.10	-0.02	-0.12	4
of Credit Hours Completed	0.08	0.00	0.09	0.09	5
of Family Effect on School Work	0.06	0.00	0.03	0.03	7
of Gender	0.21	0.19	0.01	0.20	2
of Job Effect on School Work	0.00	0.00	0.04	0.04	6
Effect on Satisfaction					
of QE Counseling	-0.13	0.08	0.00	0.08	2
of Time on Campus	-0.09	0.00	0.01	0.01	3
of Age	-0.17	-0.27	0.00	-0.27	1
of Credit Hours Completed	-0.01	0.00	0.01	0.01	3
of Job Effect on School Work	0.06	0.00	0.01	0.01	3

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Table 3.

Breakdown of Effects Generated by Paths in Trimmed Causal Model. (Continued)

Dependent Variable (Independent Variables)	Zero-Order Correlation	Direct Effect	Indirect Effect	Total Effect	Rank Order
Effect on Arts Gains					
of QE Art, Music, Theater	-0.05	0.42	0.00	0.42	1
of Time on Campus	0.15	0.00	0.10	0.10	3
of Age	-0.05	0.00	-0.05	-0.05	4
of Credit Hours Completed	0.18	0.13	0.05	0.18	2
of Gender	0.08	0.00	0.03	0.03	5
of Job Effect on School Work	0.01	0.00	-0.01	-0.01	6
of Race	-0.01	0.00	-0.03	-0.03	5
Effect on Career Gains					
of QE Counseling	0.28	0.17	0.00	0.17	3
of QE Student Acquaintances	0.32	0.12	0.00	0.12	4
of QE Vocational Skills	0.42	0.22	0.00	0.22	2
of Goal: Transfer	-0.06	0.00	-0.06	-0.06	6
of Time on Campus	0.19	0.00	0.10	0.10	5
of Age	0.09	0.00	0.01	0.01	7
of Credit Hours Completed	0.32	0.18	0.09	0.27	1
of Job Effect on School Work	-0.03	0.00	-0.01	-0.01	7
Effect on Communications Gains					
of QE Course	0.43	0.27	0.00	0.27	2
of QE Writing	0.44	0.30	0.00	0.30	1
of Goal: Job Skills	-0.02	0.00	-0.06	-0.06	7
of Time on Campus	0.17	0.00	0.13	0.13	5
of Time Studying	0.16	0.00	0.14	0.14	4
of Age	0.07	0.00	-0.03	-0.03	8
of Credit Hours Completed	0.25	0.16	0.07	0.23	3
of Family Effect on School Work	0.06	0.00	0.02	0.02	9
of Gender	0.07	0.00	0.09	0.09	6
of Job Effect on School Work	-0.01	0.00	-0.03	-0.03	8
Effect on Math, Science, and Technology Gains					
of QE Counseling	0.26	0.12	0.00	0.12	4
of QE Science	0.43	0.22	0.00	0.22	2
of QE Vocational Skills	0.40	0.17	0.00	0.17	3
of Goal: Transfer	-0.02	0.00	-0.04	-0.04	6
of Time on Campus	0.20	0.00	0.08	0.08	5
of Time Studying	0.18	0.00	0.04	0.04	6
of Age	0.07	0.00	0.02	0.02	7
of Credit Hours Completed	0.31	0.19	0.10	0.29	1
of Gender	-0.06	0.00	-0.01	-0.01	8
of Job Effect on School Work	0.05	0.00	0.04	0.04	6

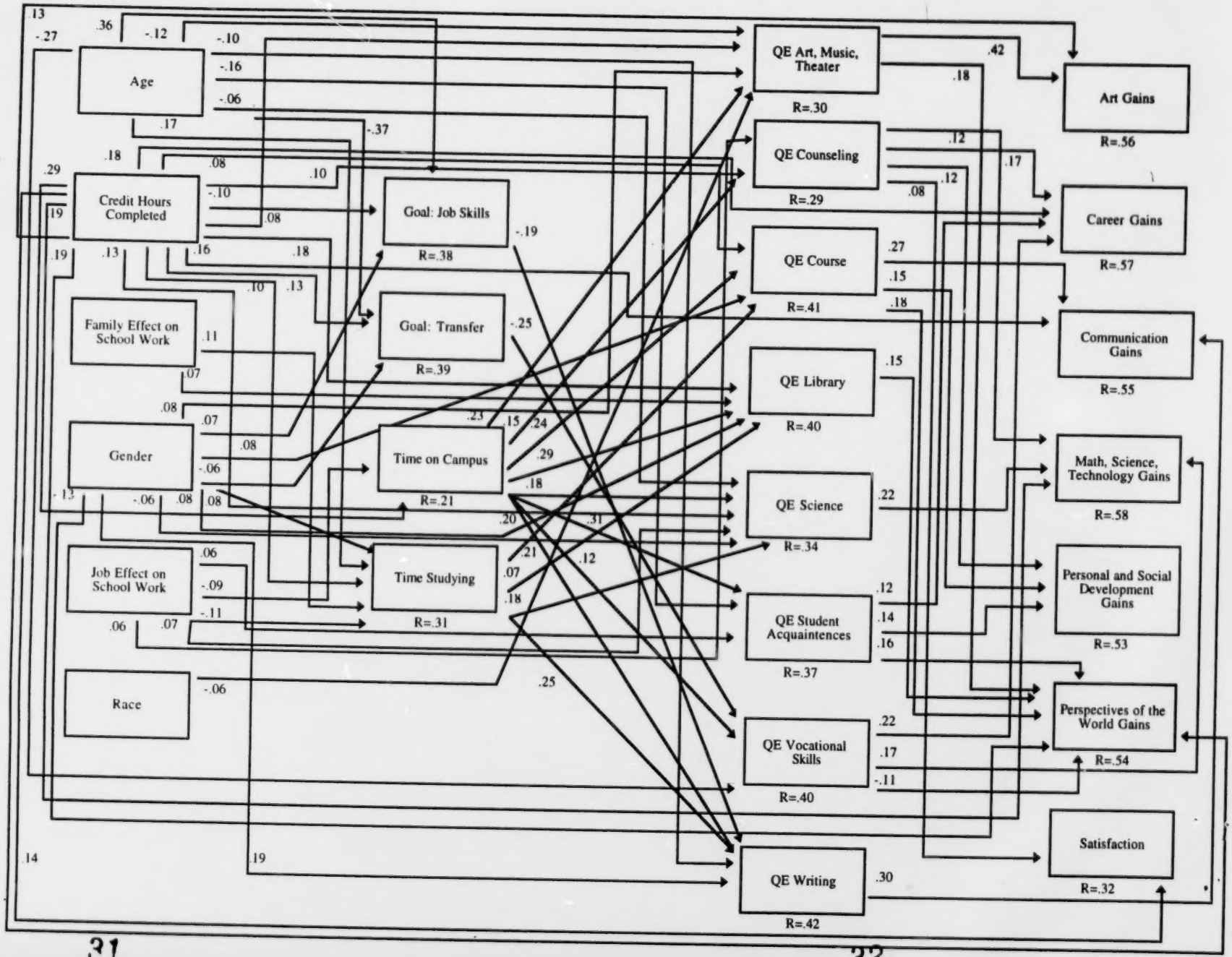
Table 3.

Breakdown of Effects Generated by Paths in Trimmed Causal Model. (Continued)

Dependent Variable (Independent Variables)	Zero-Order Correlation	Direct Effect	Indirect Effect	Total Effect	Rank Order
Effect on Personal and Social Development Gains					
of QE Course	0.41	0.15	0.00	0.15	1
of QE Student Acquaintances	0.37	0.14	0.00	0.14	2
of QE Counseling	0.25	0.12	0.00	0.12	3
of Time on Campus	0.17	0.00	0.10	0.10	4
of Time Studying	0.15	0.00	0.03	0.03	6
of Age	0.04	0.00	-0.01	-0.01	7
of Credit Hours Completed	0.19	0.00	0.04	0.04	5
of Gender	0.08	0.00	0.01	0.01	7
of Job Effect on School Work	-0.01	0.00	-0.01	-0.01	7
Effect on Perspectives of the World Gains					
of QE Art, Music, Theater	0.35	0.18	0.00	0.18	2
of QE Course	0.37	0.18	0.00	0.18	2
of QE Library	0.34	0.15	0.00	0.15	4
of QE Student Acquaintances	0.36	0.16	0.00	0.16	3
of QE Vocational Skills	0.10	-0.11	0.00	-0.11	5
of Goal: Transfer	0.11	0.00	0.03	0.03	9
of Time on Campus	0.13	0.00	0.16	0.16	3
of Time Studying	0.10	0.00	0.05	0.05	7
of Age	-0.01	0.00	-0.04	-0.04	8
of Credit Hours Completed	0.21	0.14	0.06	0.20	1
of Gender	-0.09	-0.13	0.03	-0.10	6
of Job Effect on School Work	0.04	0.00	-0.01	-0.01	10
of Race	0.01	0.00	-0.01	-0.01	10

Figure Caption

Figure 1. The trimmed path model.


Age
Credit Hours Completed
Family Effect on School Work
Gender
Job Effect on School Work
Race
Goal: Job Skills
R=.38
Goal: Transfer
R=.39
Time on Campus
R=.21
Time Studying
R=.31
QE Art, Music, Theater
R=.30
QE Counseling
R=.29
QE Course
R=.41
QE Library
R=.40
QE Science
R=.34
QE Student Acquaintences
R=.37
QE Vocational Skills
R=.40
QE Writing
R=.42
Art Gains
R=.56
Career Gains
R=.57
Communication Gains
R=.55
Math, Science, Technology Gains
R=.58
Personal and Social Development Gains
R=.53
Perspectives of the World Gains
R=.54
Satisfaction
R=.32